

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
27 October 2005 (27.10.2005)

PCT

(10) International Publication Number
WO 2005/101426 A1

- (51) International Patent Classification: G21F 9/28, 9/34, 9/36
- (21) International Application Number: PCT/GB2005/001423
- (22) International Filing Date: 13 April 2005 (13.04.2005)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 0408113.9 13 April 2004 (13.04.2004) GB
- (71) Applicant (for all designated States except US): BRITISH NUCLEAR FUELS PLC [GB/GB]; 1100 Daresbury Park, Daresbury, Warrington, Cheshire WA4 4GB (GB).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): GODFREY, Ian, Hugh [GB/GB]; Limmel Lodge, St Bees Road, Whitehaven, Cumbria CA28 9UB (GB). BUTCHER, Edward, John [GB/GB]; 11 Abbey Farm, Abbey Road, St Bees, Cumbria CA27 0DY (GB). PARR, Joanne, Louise; 47 East Road, Egremont, Cumbria CA22 2EF (GB).
- (74) Agent: HARRISON GODDARD FOOTE; Belgrave Hall, Belgrave Street, Leeds LS2 8DD (GB).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ENCAPSULATION OF HAZARDOUS WASTE MATERIALS

(57) Abstract: The invention provides a method for the encapsulation of uranium metal which comprises treating the metal with an encapsulant which comprises a cementitious material and curing the cementitious material, the process additionally comprising the provision of means for the minimisation of the corrosion of the metal. Suitable modes for the provision of means for the minimisation of corrosion include the provision of a source of oxygen within the cement matrix, either by facilitating enhanced oxygen access from the atmosphere using air entraining agents or cenospheres or by the inclusion of an independent source of oxygen, for example a peroxide. An alternative mode for the provision of means for the minimisation of corrosion comprises facilitating the minimisation of the water content of the matrix, which is conveniently achieved by the addition of superplasticisers. The method allows for the long term storage of uranium metal and provides significant benefits in terms of health, safety and the environment.

WO 2005/101426 A1